

Work Order ID 50992

July 29, 2009 2:26:11 PM

Page 1

Item ID: D212-664-101TRN

Accept

Setup Start

Revision ID: C

Stop

Item Name: Crosstube Turning Detail

Start Date: 7/31/09 Start Qty: 1.00

Cust Item ID:

Required Date: 8/07/09 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: W Date: Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D212-664-141	Rev C

(P10) →

100 0.00



Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

0.00

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio
FA113□2-Turn first side as per Folio FA113□3-File down transition lines
smooth.

A.m 09 - 08 - 13 @

110 0.00



QC

Quality Control

QC1- Inspect dimensions to dimension sheet

Memo

0.00

A.m 09 - 08 - 13 @

120 0.00



Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

0.00

1-Turn second side as per Folio FA113□2-File down transition lines
smooth. □3-Remove sand and plugs

A.m 09 - 08 - 13 @

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D212-664-101 TRUPAR #: N/A Fault Category: Prod - x-tube machining NCR: (Yes) No DQA: JA Date: 09.08.18
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: JA Date: 05.05.20

NCR: <u>50992</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/8/12	# 100	Durking machining it was found that the extrusion D6005-128 was too cracked to be machined to a acceptable acceptable		- Scrap extrusion unacceptable to machine. And replace in this w/o ID # <u>32310</u>	09-08-17 A.M.			
		X-tube. Qty 10 P.C. Subprocess checked not correctly stored vertically. Note: Once the chuck was tightened, end of tube would not stay in the tail stock		X-tube is stored correctly in no additional weight in front of them. - inform supplier of issue to get a credit for mat. Ensure material is bottomed out in the rack				

NOTE: Date & initial all entries

[illegible]

Page 2

Accept

[illegible]**Setup Start**

Stop

[illegible]**Cust Item ID:**[illegible]

Customer:

Reference:

Run Start

Stop

Operation	Description
-----------	-------------

Set Up/ Run Hours

Draw Number

Draw Rev.

Plan Code

Accept Qty

Reject Qty

Reject Number

Insp. Stamp

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

a.m. 09:09 - 18 (1)

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

1 ~~0~~ - ADM 7-5-13

Crosstubes Chemical Conversion

0.00

[illegible]

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 ~~0~~ - AWM 7-8-13

Work Order ID 50992

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Page 3

Item ID: D212-664-101TRN

Accept



Setup Start



Revision ID: C

Item Name: Crosstube Turning Detail

Stop



Start Date: 7/31/09

Start Qty: 1.00



Cust Item ID:

Required Date: 8/07/09

Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

9-8-13

0.00

Quality Control

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and Stock in kanban rack Location: *X-TUBE CELL*

1 / 8 - AUG 9-8-13

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

PS-08-14

C209108/13

Picklist Print

July 29, 2009 2:26:10 PM

Page 1

Work Order ID: 50992

Parent Item: D212-664-101TRNRevC

Parent Item Name: Crosstube Turning Detail

Start Date: 7/31/09

Required Date: 8/07/09

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6005-128RevA		Manufactured	No			120	Each	22.0000	1.0000			



Crosstube Material

Am 09-08-13

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	22	
34686	1	
34775	2	
38337	19	

1 + 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



405092

DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED GP	APPROVED [Signature]	DRAWING NO. D212-664-141	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

RELEASED

07.04.24

DEO ATTACHED

Qty	Part Number	Description
X	D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
1	D6005-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

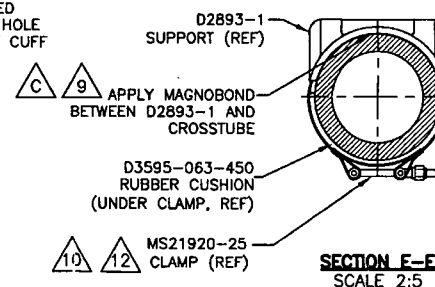
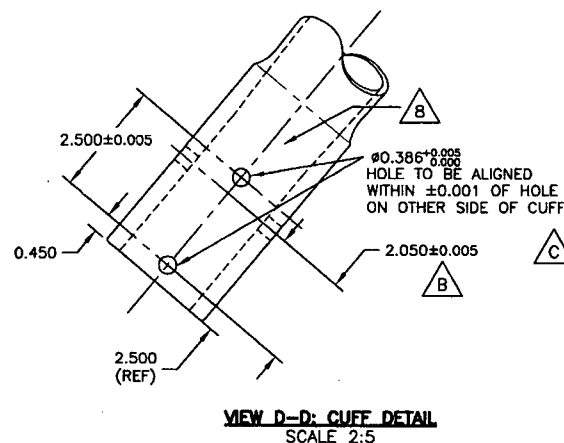
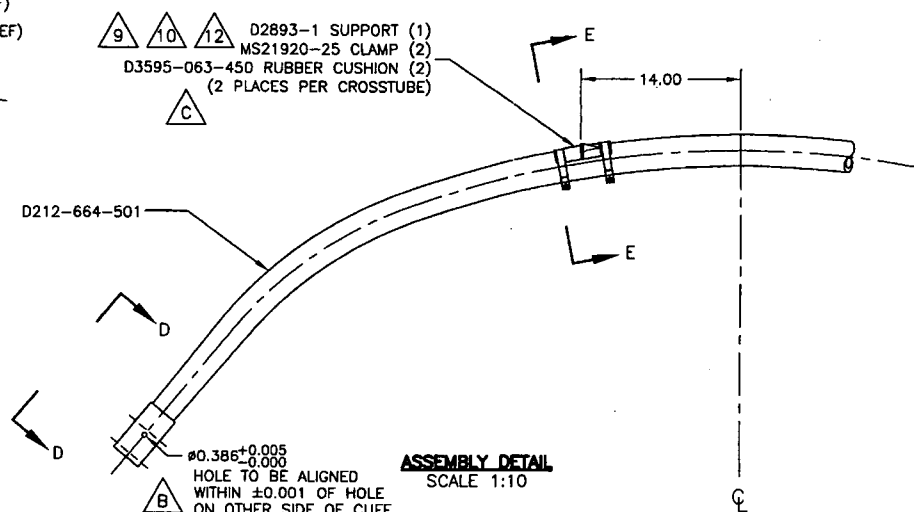
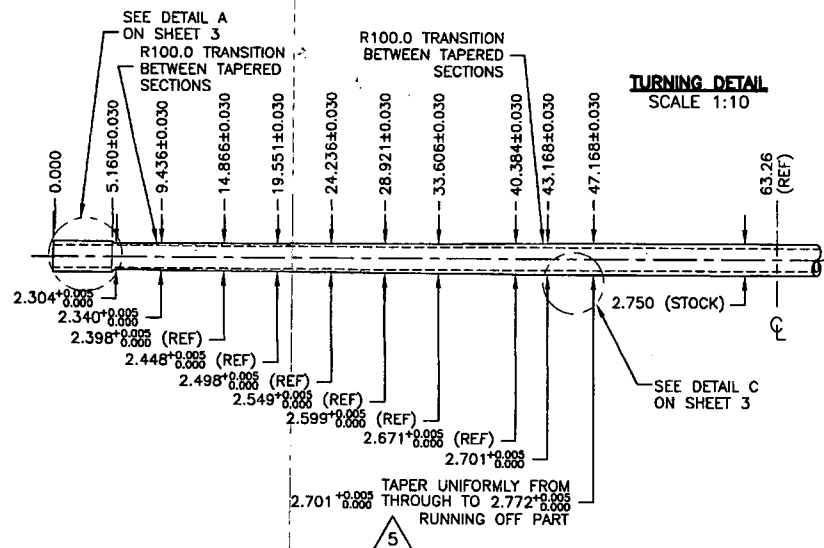
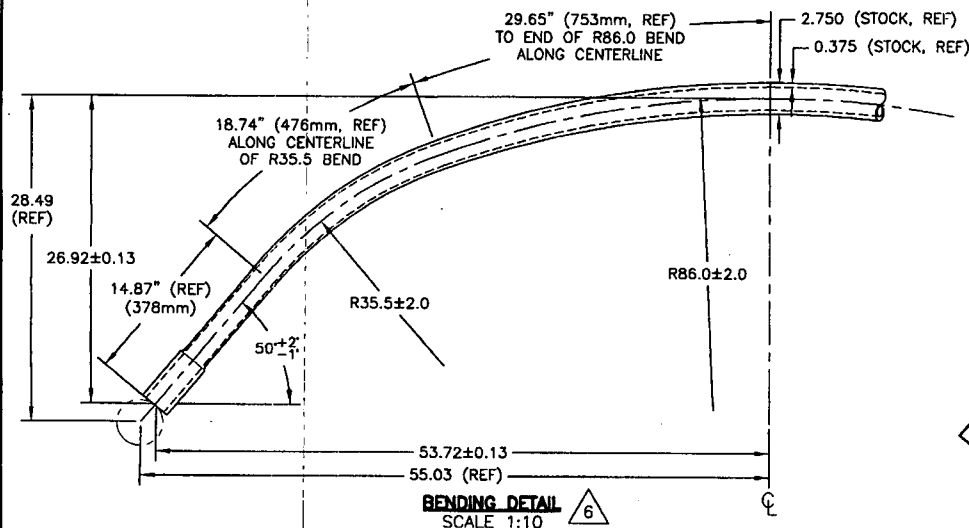
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.51±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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W/O 50992



RELEASED
07.04.24
SEO ATTACHED

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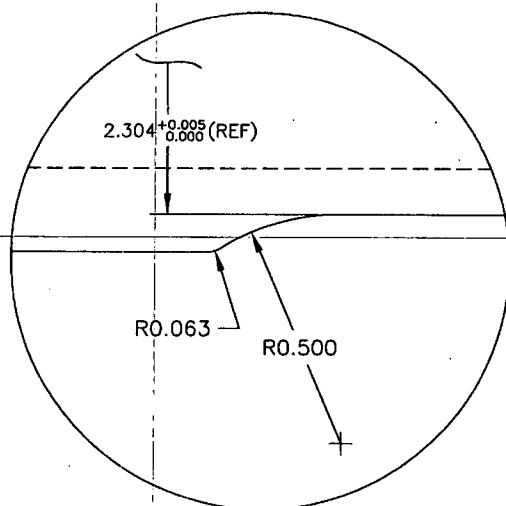
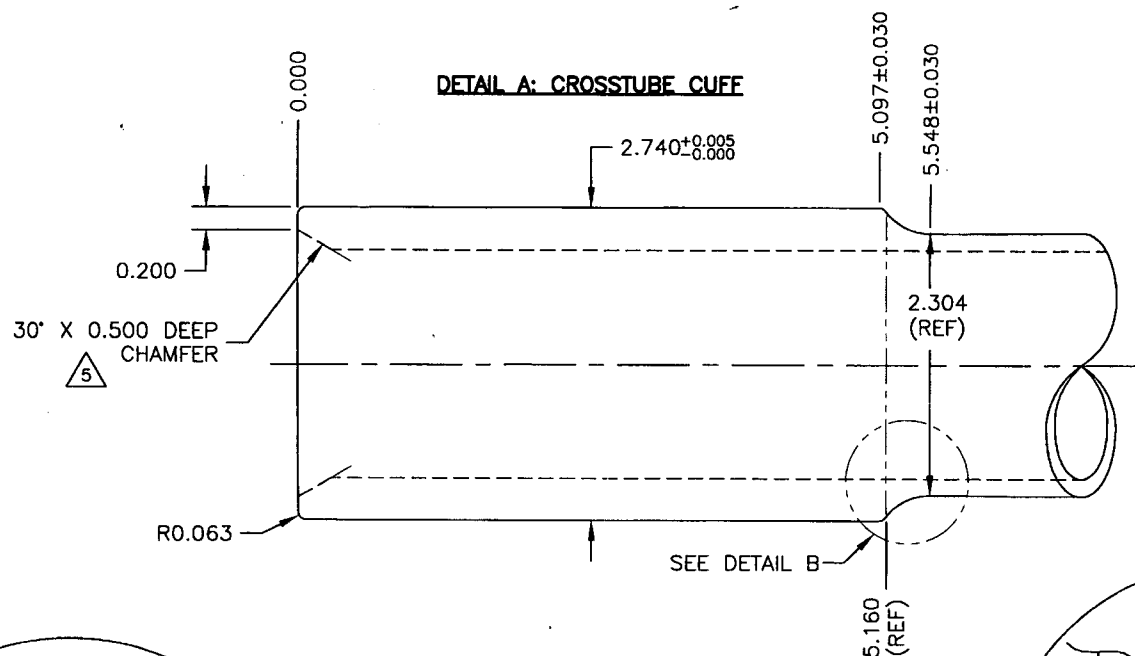
DESIGN	PH	DRAWN BY	PH	DART	DART AEROSPACE LTD. WILLOWDALE, ONTARIO, CANADA
CHECKED	97	APPROVED	4	DRAWING NO. D212-664-141	REV. C SHEET 2 OF 3
DATE	07.03.08	TITLE	XTUBE ASS'Y (205/212/412 HI FWD)	SCALE	1:10

W/O 50992

RELEASED
87.04.24 P
PER ECN 989

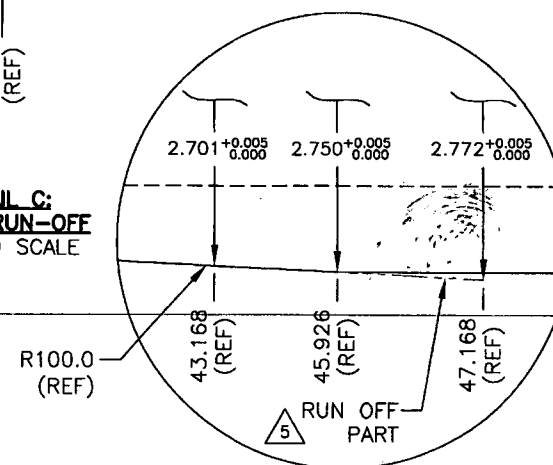
DEO ATTACHED

DETAIL A: CROSSTUBE CUFF



**DETAIL B: CUFF
TRANSITION
SCALE 4:1**

**DETAIL C:
TAPER RUN-OFF
NOT TO SCALE**



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DATE		07.03.08		TITLE		XTUBE ASS'Y (205/212/412 HI FWD)	
						SCALE 1:1	

DRAWING NO. D212-664-141	TITLE CROSSTUBE	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-141-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>W</i>	CHECKED <i>R</i>	MFG. APPR. <i>E</i>	APPROVED <i>W</i>		DE APPR. <i>#</i>		
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16		DATE 09/06/16		

W/O 50992

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)

THE D212-664-141B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-141 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-141 CROSSTUBE.

RELEASED
09/06/22

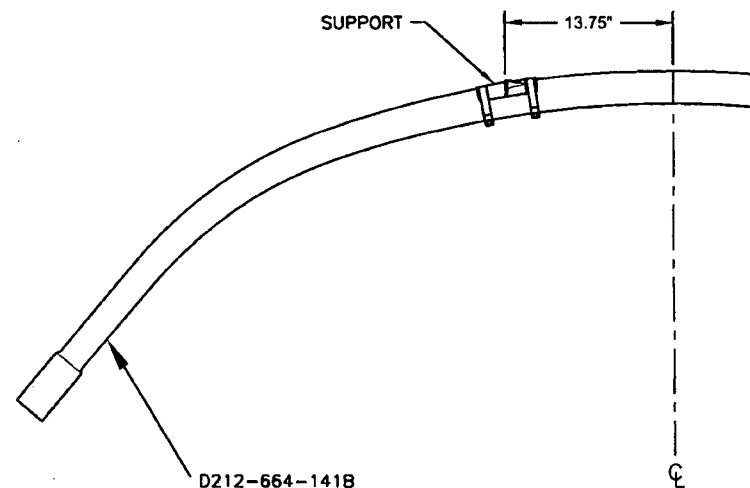


FIGURE 1 - SUPPORT INSTALLATION

DART AEROSPACE LTD		Work Order: 50992
Description: Crosstube Assembly (205/212/412 High Fwd)		Part Number: D212-664-141
Inspection Dwg: D212-664-141 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.062	/			
	2.740	+0.005/-0.000	2.740	/			
	5.097	+/-0.030	5.097	/			
	2.304	+0.005/-0.000	2.308	/			
	2.340	+0.005/-0.000	2.345	/			
	2.398	+0.005/-0.000	2.400	/			
	2.448	+0.005/-0.000	2.449	/			
	2.498	+0.005/-0.000	2.498	/			
	2.549	+0.005/-0.000	2.552	/			
	2.599	+0.005/-0.000	2.604	/			
	2.671	+0.005/-0.000	2.678	/			
	2.701	+0.005/-0.000	2.703	/			
SIDE B	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.740	+0.005/-0.000	2.740	/			
	5.097	+/-0.030	5.097	/			
	2.304	+0.005/-0.000	2.308	/			
	2.340	+0.005/-0.000	2.345	/			
	2.398	+0.005/-0.000	2.400	/			
	2.448	+0.005/-0.000	2.449	/			
	2.498	+0.005/-0.000	2.498	/			
	2.549	+0.005/-0.000	2.552	/			
	2.599	+0.005/-0.000	2.604	/			
	2.671	+0.005/-0.000	2.678	/			
	2.701	+0.005/-0.000	2.703	/			
	126.51	+/-0.020	126.510	/			

Measured by: Q.M	Audited by: HWM	Prototype Approval:	N/A
Date: 09.08.13	Date: 9-8-13	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	